Epidemiology of airway colonisation by Rasamsonia argillacea during cystic fibrosis

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Auteur	Matray, Olivier [1], Giraud, Sandrine [2], Gargala, Gilles [3], Bouchara, Jean-Philippe [4], Bougnoux, Marie-Elisabeth [5], Favennec, Loïc [6]
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Résumé en anglais

Background :
Species of the *Rasamsonia argillacea* complex are emerging fungi in patients with cystic fibrosis (CF) or chronic granulomatous disease (CGD). It was clearly established now that these fungi may disseminate in immunodeficient patients. The aim of this work was to evaluate the automated typing system DiversiLab for investigating the molecular epidemiology of airway colonization by species of the R. argillacea complex.

Methods :
142 isolates of the *R. argillacea* complex collected from 33 CF patients and one CGD patient from 10 European hospital centers were analyzed, together with 2 environmental isolates. The recently described automated typing system DiversiLab (bioMérieux)was based on PCR amplification of repetitive sequences using the pan-fungus DiversiLab Fungal kit. The amplification products were separated by capillary electrophoresis, resulting in a single profile for each isolate which were analyzed using the DiversiLab software. All isolates were identified at the species level by beta-tubulin sequencing.

Results :
Among the 144 isolates studied, 34 different genotypes were identified. Most isolates belonged to three clusters in close agreement with species identification. Some epidemiologically unrelated isolates from distinct patients, exhibited the same genotype. Moreover, *R. argillacea* isolates were recovered from sequential sputum samples from 15 CF patients, suggesting chronic colonization. This was confirmed for 13/15 patients with a unique genotype (8/13), or a largely dominant genotype (5/13). Different genotypes were found for sequential isolates collected from 2/15 patients. Four sequential isolates of the same were collected from one CGD patient.

Conclusion :
The DiversiLab system proved to be an easy and efficient method to investigate the molecular epidemiology of *R. argillacea* in CF or CGD patients. Results confirm the capacity of *R. argillacea* species to chronically colonize CF patient airways.

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